

Bean Tunnel

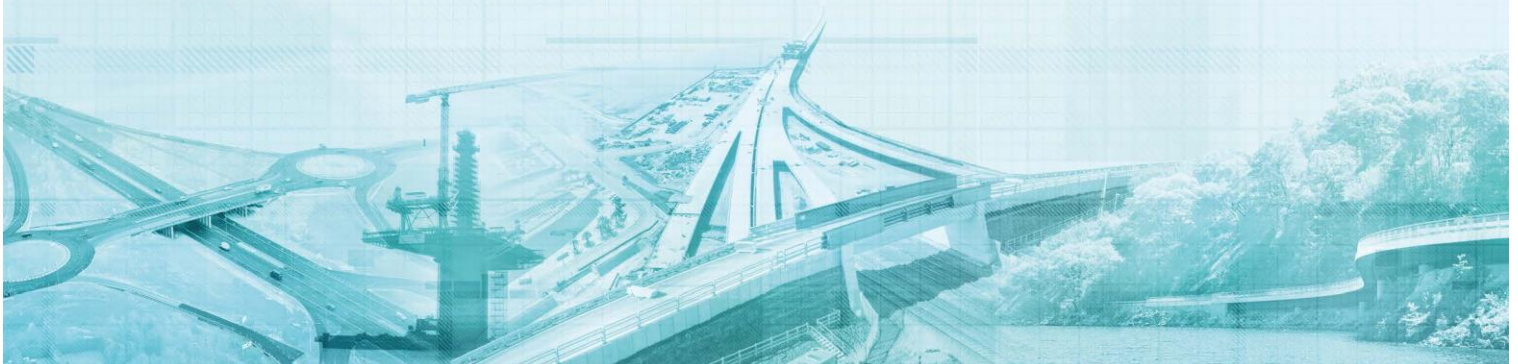
Lighting Design AIP

Balfour Beatty

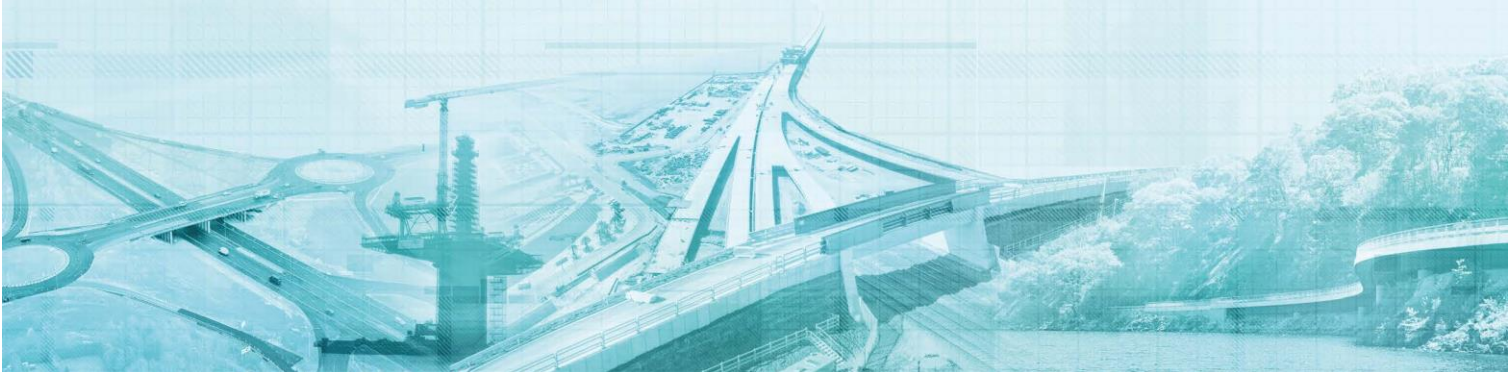
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Document Issue Record

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Project DFL1551

**Bean Tunnel
Bluewater
Application for A.I.P.**

for

Tony Gee

Date: November 2020



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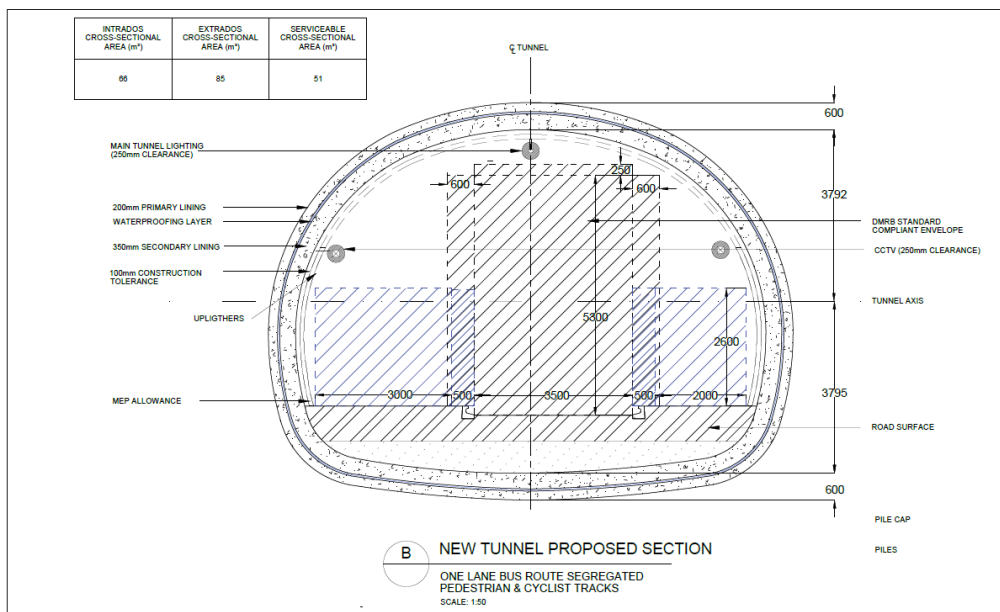
1. Introduction

Following earlier discussions and receipt of provisional data we have produced this document outlining our proposed concept solution for Approval-In-Principal (AIP) by all stakeholders to enable us to move forward when final structural tunnel design details and drawings are issued to DfL. We do not consider that there would be any significant material changes to this concept on release of final design of the structure.

We have based this AIP on the structure being a new construction for unidirectional traffic (Busses) at a design speed of 30mph. The lighting design builds on that proposed by Jacobs to cover the roadway, shared pedestrian/cycleway and single pedestrian way.

2. Construction

Initial Data received as per below cross section with tunnel being circa 80m in length.



Key details, there is proposed to be wall cladding up to circa 3m height along the total length of the structure to both walls. Above this dado line the surface will be smoothed natural concrete.

3. Lighting

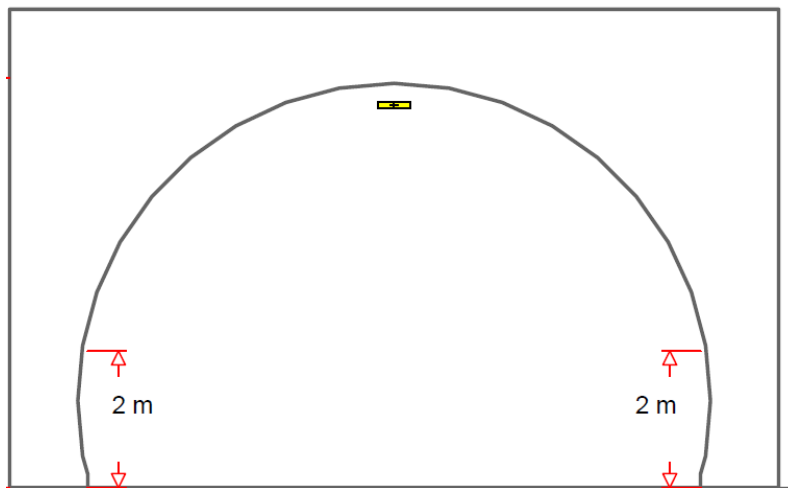
There are two distinct lighting requirements 1) Functional and 2) Feature.

1) Functional Lighting

The functional lighting is to illuminate the roadway for the unidirectional bus route as well as the shared cyclist/pedestrian and sole pedestrian routes at all material times with the scheme conforming to BS 5489-1:2020.

The functional lighting is proposed to be LED two models of tunnel luminaires from Signify TubePoint Gen2 range mounted along the centreline of the tunnel arched roof in end-to-end pairs at circa 10m spacing.

Target Daytime illuminance will be 350 Lux
Target Night time illuminance will be 100 Lux



Depiction of mounting position and wall considerations.



Depiction of luminaire section layout within the tunnel.

Installation comprises of:

TubePoint Gen2 Small at circa 10m spacing will provide the night time lighting and fed from an uninterruptable power supply (UPS).

TubePoint Gen2 Large at circa 10m spacing will together with the TubePoint Gen2 Small provide for the additional daytime lighting levels.

2) Feature Lighting

The desired feature lighting will illuminate the full length of the ceiling/roof area of the tunnel only, creating a blue coloured hue from the top of proposed lower wall cladding.

This is proposed to be suitable linear LED luminaires mounted atop proposed lower wall cladding.



Initial concept illustration of proposed functional & feature lighting.

In order to retain the feature 'hue effect' without being overpowering or distracting to users, there will be two levels of lighting for Day/Night periods.

4. Control

In order to have minimal ongoing maintenance requirements a simple control regime is considered suitable for this structure. All control elements will be mounted within a local distribution panel, location to be agreed. Lighting control will be primarily from an exterior photocell sensing day/night.

DFL-Application AIP-November 2020